John Day Lock & Dam

Inland Waterways Users Board
Paducah, KY
July 13, 2006

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Channels and Harbors Project
Portland District Corps of Engineers

JOHN DAY LOCK & DAM

Project Overview

- Completed April 1968
- Const. Cost $ 512,400,000
- Lake Flood Storage 500,000 acre-ft
- Powerhouse 16 units 2,200,000 KW
- Navigation Lock 110 ft, Single Lift, 86 x 369 ft
- Emergency Repairs 2002/2003 $ 14,000,000

Project Overview

Navigation Lock

Down Stream
Lock Gate

Structural Issues

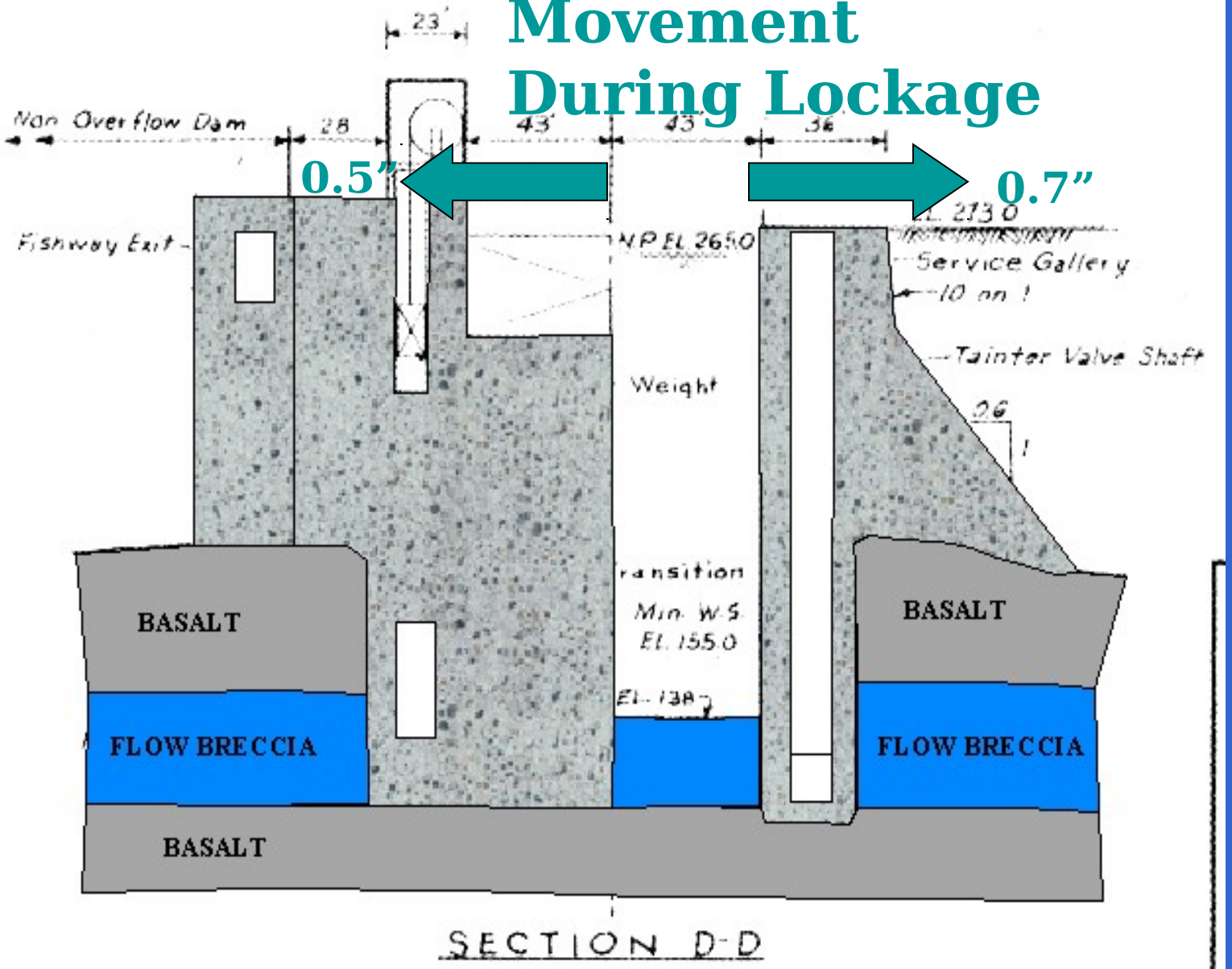
Navigation Lock

North Wall Now Cracking Like the South Wall

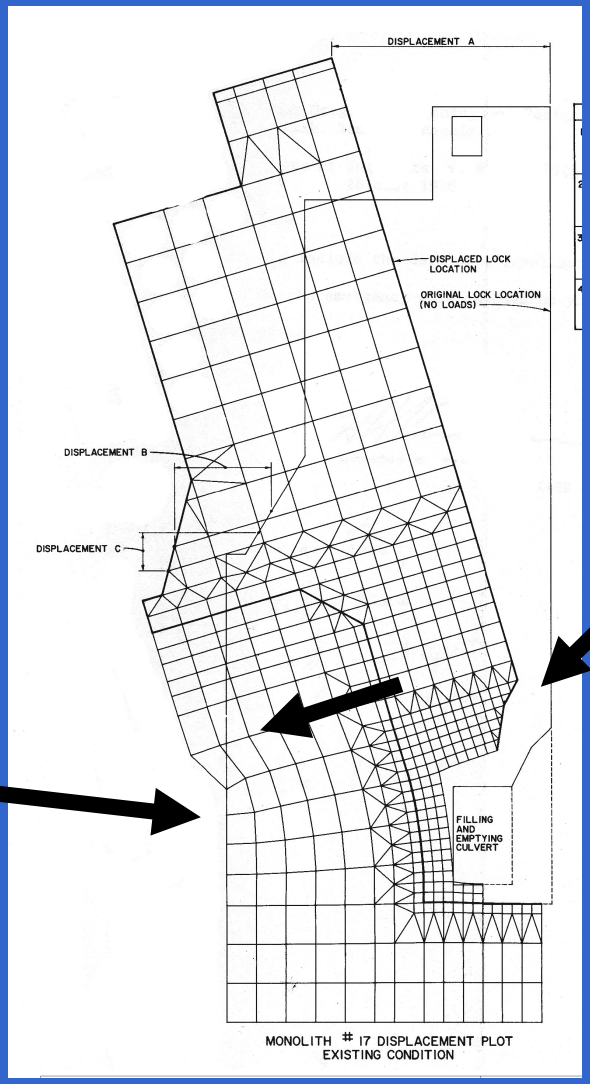
Structural Issues

Horizontal Cracking on Monolith bases

Movement During Lockage



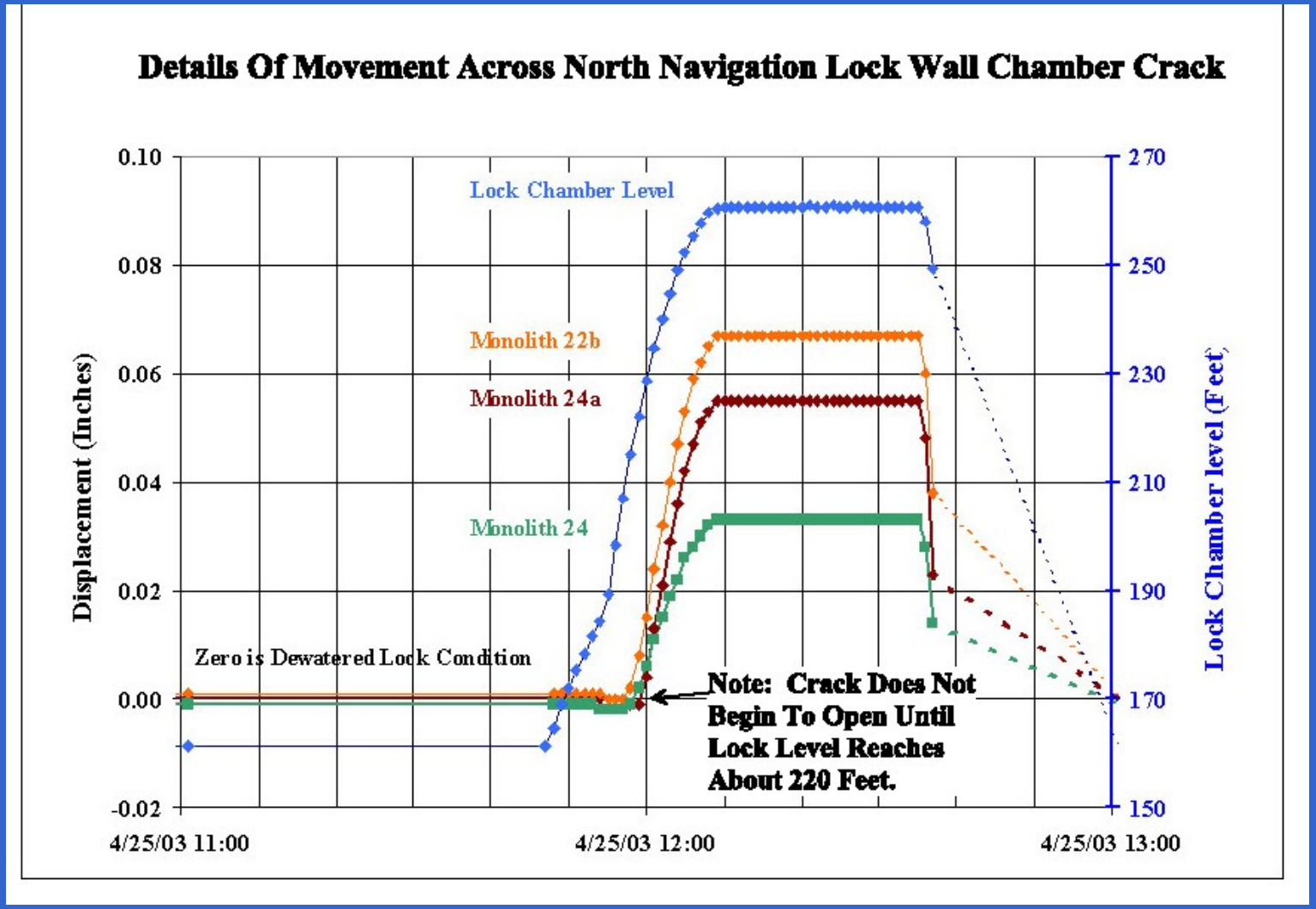
Lock Wall Movement Analysis



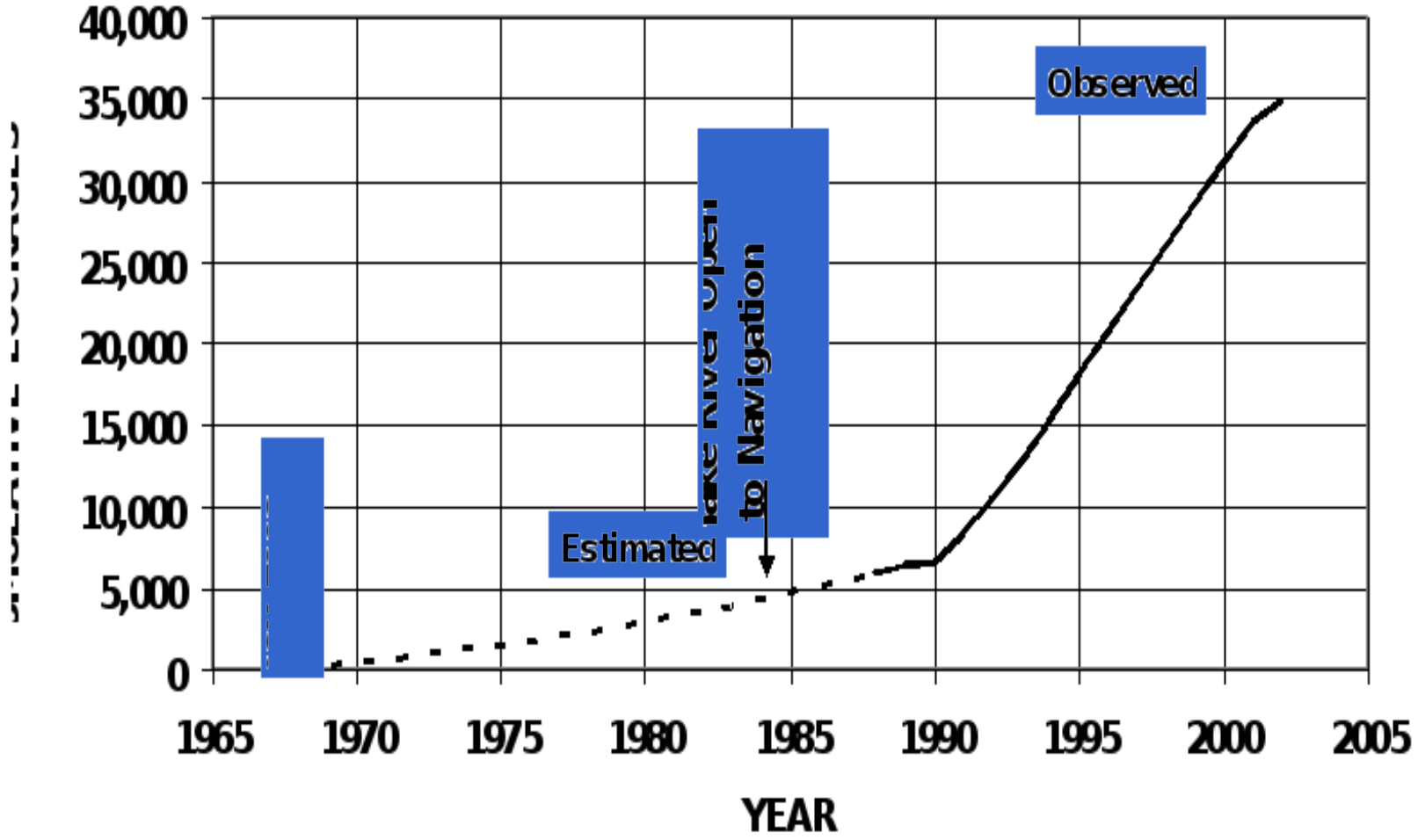
Lock Wall Crack

Flow Breccia Deforms

North Wall
Un-repaired Crack



JOHN DAY DAM
CUMULATIVE NUMBER OF LOCKAGES
(LOADING CYCLES)



Interim Structural Repairs

Concrete Monolith Repairs to Cracked Monoliths 8 and 27

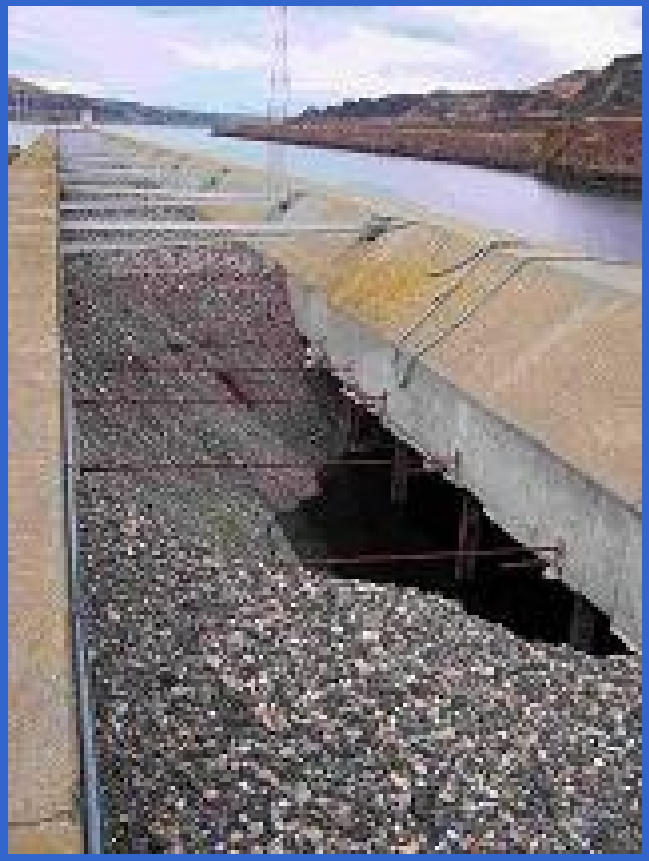
- Emergency Repairs – 3 Months of Design and a Forced Outage for 1 month.
- Cost of Emergency Repairs for 2 of the 30 monoliths – $14 Million
- Water Still Leaking from Foundation Through Anchors.

Additional Structural Issues

Downstream Guidewall

- Actively Failing Due to Corrosion and Material Loss
- Designed as a Sheet Pile Cell with Concrete Cap
- Sheet Pile Gone – Actively Losing Material
- Loss of Navigation

- Estimate $2M repair



John Day Est. Schedule

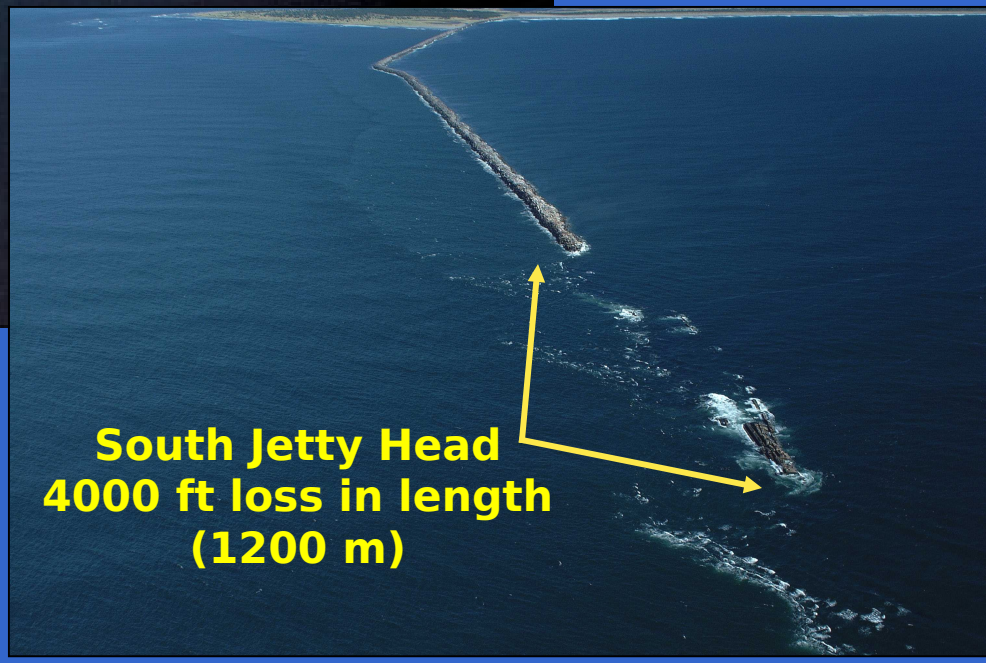
- FY06
  - Purchase Ropes Assemblies.
  - Cost = $350k (Advertising Contract)
- FY07
  - Install new ropes & bearings,
  - Purchase critical spares
  - Begin Major Rehab Report Mainly Scoping
- FY 08 – FY 2010
  - Continue Major Rehab Report – define problems and alternative solutions
- FY 2011+ Begin Major Rehab repairs
  - High Cost

ONGOING Structural Repairs on Columbia Snake System

North Jetty – 2.5 mi long (4.02 km)

South Jetty – 6.6 mi long (10.62 km)

Spur Jetty – 0.3 mi long (0.48 km)



Mouth of the Columbia River

Interim Jetty Repairs

Approx. $23M

QUESTIONS ??